

CLAIMS

What is claimed is:

1. A method of centering a subject in a medical imaging device comprising the steps of:

5 positioning a subject in a scanning bay;
 comparing a center of mass of the subject to a reference point; and
 repositioning the subject in the scanning bay to reduce a difference in position between the center of mass of the subject and the reference point.

10 2. The method of claim 1 further comprising step of determining a distance of the center of mass of the subject from isocenter of a radiographic energy fan beam.

 3. The method of claim 1 further comprising the step of determining an x-direction and a y-direction centering error of the subject relative to the reference point.

15 4. The method of claim 1 wherein the reference point includes one of a center of the medical imaging device and a center of a bore of the medical imaging device.

20 5. The method of claim 1 further comprising the step of automatically performing the steps of positioning, comparing, and repositioning.

 6. The method of claim 1 wherein the step of repositioning includes adjusting an elevation of the subject within the scanning bay.

25 7. The method of claim 1 further comprising the step of performing the step of at least one scout scan of the subject.

 8. The method of claim 7 further comprising the step of determining the
30 center of mass of the subject from the at least one scout scan.

9. The method of claim 7 wherein the at least one scout scan includes at least one of a lateral scout scan and an anterior-posterior (AP) scout scan.

10. The method of claim 1 further comprising the step of automatically aligning the center of mass of the patient with isocenter of a radiographic energy fan beam.

11. The method of claim 1 further comprising the step of determining an adjusted projection area (PA) from a position of the center of mass of the subject after repositioning.

12. The method of claim 1 further comprising the step of adjusting a tube current modulation of the medical imaging based on at least the repositioning of the subject.

13. The method of claim 1 further comprising the step of determining the center of mass of the subject from at least one scout scan and an elevational profile of the subject.

14. The method of claim 13 further comprising the step of determining the elevational profile of the subject from feedback received from a sensor assembly disposed proximate the scanning bay.

15. A computer readable storage medium having stored thereon a computer program representing a set of instructions, which when executed by at least one processor, causes the at least one processor to:

determine a centroid of a subject;

determine a value of mis-centering of the centroid of the subject within a medical imaging device; and

adjust a position of the subject within the imaging device to compensate for the value of mis-centering.

16. The computer readable storage medium of claim 15 wherein the at least one processor is further caused to determine a distance of the centroid from isocenter.

5 17. The computer readable storage medium of claim 15 wherein the at least one processor is further caused to determine the centroid of the subject from at least one of:

at least two scout scans; and

at least one scout scan and an elevational profile of the subject.

10

18. The computer readable storage medium of claim 17 wherein the at least two scout scans includes at least one a lateral scout scan and at least one an AP scout scan and the at least one scout scan includes at least one of a lateral scout scan and an AP scout scan.

15

19. The computer readable storage medium of claim 15 wherein the at least one processor is further caused to determine a distance of the centroid from isocenter and geometrically determine an x-direction and y-direction centering error of the subject relative to a reference position.

20

20. The computer readable storage medium of claim 19 wherein the reference position defines a properly centered subject.

21. The computer readable storage medium of claim 15 wherein the at least
25 one processor is further programmed to adjust an elevation of the subject within the imaging device based on the value of mis-centering.

22. A method of medical imaging comprising the steps of:
positioning a subject in a medical imaging device;
30 determining a value of mis-elevation of the subject; and
adjusting an elevation of the subject device to reduce the value of mis-elevation.

23. The method of claim 22 further comprising the steps of receiving feedback as to an elevation of the subject from a sensor assembly proximate to the medical imaging device.

5

24. The method of claim 22 further comprising the steps of adjusting the elevation of the subject according to a difference between an actual elevation of the patient and a desired elevation of the subject.

10

25. The method of claim 22 further comprising adjusting the step of a lateral position of the subject within the medical imaging device.

15

26. The method of claim 22 further comprising step of determining a centroid of the subject and adjusting at least one of position of the subject, a PA, and a tube current modulation the medical imaging device to compensate for misalignment between the centroid the subject and isocenter.

20

27. A tomographic system comprising:
a rotatable gantry having a bore centrally disposed therein;
a table movable within the bore and configured to position a subject for tomographic data acquisition within the bore;
a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy toward the subject;
a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject; and
a computer programmed to:
determine a centroid of the subject; and
adjust an elevation of the subject to align the centroid with a reference position.

30

28. The system of claim 27 wherein the computer is further programmed to perform at least one scout scan from which to determine the centroid of the subject.

29. The system of claim 27 wherein the computer is further programmed to
5 determine an adjusted PA according the adjusted elevation of the subject.